

Application No. 10/675,260

REMARKS

Upon entry of this amendment, claims 1-6 will remain in this application, claims 7-15 having been withdrawn in response to the examiner's final restriction requirement.

Claims 1-5 stand rejected under 35 U.S.C. 102(b) as being anticipated by Costrini et al. (U.S. Patent 6,187,680) or under 35 U.S.C. 102(e) as being anticipated by Pozder et al. (U.S. Patent 6,803,302). Claim 6 stands rejected under 35 U.S.C. 103(a) over Costrini et al. Reconsideration of these rejections is requested in view of the above amendment.

The present invention is directed to an apparatus for solving a problem that has arisen in integrated circuit manufacturing as the line widths and other dimensions of the integrated circuits have progressively decreased. Because of the progression in density and small dimensions in integrated circuits, it has become necessary in some instances to utilize what are referred to as low-k dielectrics. These dielectrics are characterized by being brittle and/or soft and therefore easily broken during certain operations such as wire bonding. Applicants' invention is directed to a construction that provides additional support for a wire bond connection points in such integrated circuits.

Claim 1 has been amended to more succinctly point out the features that are considered to be novel in this structure. In particular, claim 1 has been amended to recite that the dielectric material is a brittle material as disclosed in paragraph 002, lines 3 and 4 of the application. In conjunction with this recitation, the metal reinforcing layer that is positioned beneath the wire bonding pad is also defined as being structured to stiffen the wire bonding pad and to distribute the bonding forces over an extended area. These features are not believed to be disclosed or suggested in either the Costrini or Pozder patents.

Referring first to Costrini et al., it is noted that there is no teaching or suggestion that the bond pad that is formed in the Costrini device need be reinforced by any underlying layers. The layer referred to by the examiner as a reinforcing layer is not described as a reinforcing layer but rather as a conventional barrier layer. As such, that layer is exceedingly thin and not

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intended to provide structural support for the bond pad. Accordingly, there is no teaching or suggestion in Costrini et al. that would lead one to the structure recited by applicants' claim 1.

Pozder describes a reinforcing technique but does not describe a system for providing bond pad support as disclosed by applicants. In particular, Pozder does not describe the multi-level arrangement set forth in applicants' claim 1. Note that the bond pad described in Pozder as element 134 is actually found below the contact points that are indicated at reference 204 in FIG. 2 used by the examiner. Accordingly, there is no suggestion that the bonding pad 134 is structurally supported by the barrier layer 202 or the dielectric layer 136. Accordingly, it is not seen that there is any teaching or suggestion in Pozder that would lead one to the combination set forth in applicants' claim 1. Accordingly, it is believed that applicants' claim 1 patentably distinguishes over both Costrini et al. and Pozder.

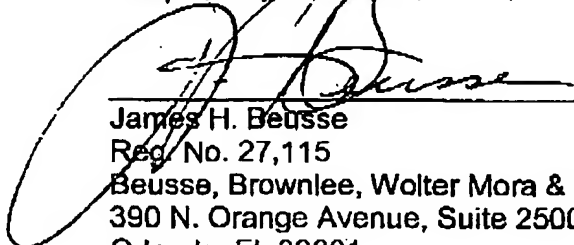
Since claim 6 also depends from claim 1, it is apparent that claim 6 would also be patentably distinguishable over Costrini et al. Further, even though there may be some overlap in the dimensions given by Costrini et al. and those recited in applicants' claim 6, it is pointed out that there is no suggestion in Costrini et al. that the layer referred to by the examiner could be used as a support layer to distribute the bonding pad forces as recited in applicants' claims.

Turning to the objection of claim 3, the examiner is correct in understanding that the intent of the recitation of the pattern structure was to assert that the reinforcing layer could have any type of pattern. Examples of patterns were given in the specification but those examples were certainly not intended to be limiting. Accordingly, it is intended that there is a possibility of tens of thousands of pattern structures that could be used to form the reinforcing layer. The rejection on the basis that there is no specific recited pattern structure is not believed to be a proper rejection. Reconsideration of this objection is therefore requested.

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For all the reasons set forth above, it is submitted that this application is now in condition for allowance and such allowance is requested.

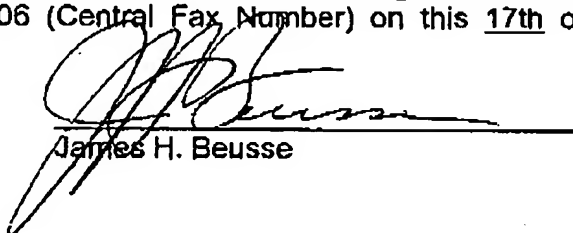
Respectfully submitted,



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CERTIFICATE OF TRANSMISSION

I HEREBY CERTIFY that this Amendment is being FAXED to the U.S. Patent Office at 703-872-9306 (Central Fax Number) on this 17th of March, 2005.



James H. Beusse